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| <b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2019 Office of the Secretary Of Defense | <b>Date:</b> February 2018 |
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| <b>Appropriation/Budget Activity</b>  |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b>   |                      |                |                |                |                |                         |                   |
|---|--------------------|----------------|----------------|---------------------|--|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide I</i> BA 5: <i>System Development &amp; Demonstration (SDD)</i> |                    |                |                |                     | PE 0604161D8Z <i>I Nuclear and Conventional Physical Security/Countering Nuclear Threats</i> |                      |                |                |                |                |                         |                   |
| <b>COST (\$ in Millions)</b>  | <b>Prior Years</b> | <b>FY 2017</b> | <b>FY 2018</b> | <b>FY 2019 Base</b> | <b>FY 2019 OCO</b>   | <b>FY 2019 Total</b> | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022</b> | <b>FY 2023</b> | <b>Cost To Complete</b> | <b>Total Cost</b> |
| Total Program Element   | 51.028             | 10.152         | 12.536         | 8.333               | -  | 8.333                | 12.887         | 8.270          | 7.194          | 7.325          | Continuing              | Continuing        |
| 163: <i>Nuclear and Conventional Physical Security</i>  | 42.526             | 6.936          | 7.900          | 3.373               | -  | 3.373                | 9.034          | 8.270          | 7.194          | 7.325          | Continuing              | Continuing        |
| 042: <i>CNT Prevention SDD</i>  | 8.502              | 3.216          | 4.636          | 4.960               | -  | 4.960                | 3.853          | 0.000          | 0.000          | 0.000          | Continuing              | Continuing        |

**Note**

The FY2019 funding request was reduced by \$3.461 million to account for the availability of prior year execution balances

**A. Mission Description and Budget Item Justification**

This Program Element (PE) addresses the need to defend and deter against weapons of mass destruction (WMD) threats and to safeguard personnel; prevent unauthorized access to equipment, installations, material, and documents; and to safeguard the foregoing against espionage, sabotage, damage, and theft. This program oversees advanced engineering development throughout DoD for an integrated and systemic RDT&E approach for countering nuclear threats and nuclear and conventional physical security technology and systems. The funding has been centralized in this Defense-wide PE since the early 1990s and represents a substantial portion of all DoD physical security RDT&E funding. Priorities for this PE RDT&E efforts are driven by inputs from Quadrennial Defense Review guidance, Combatant Command and Service requirements, analysis reports such as "Protecting the Force: Lessons from Fort Hood," January 2010, the Integrated Unit, Base, and Installation Protection Cost Benefits Analysis, Multi-national Work Plans established through the Nuclear Security Summit process, and DoD Directive 5210.41, Security Policy for Protecting Nuclear Weapons-directed requirements and associated security deviation reports.

Under this integrated approach, funds are used to provide system development and demonstration for the Department in seven capability areas: (1) Detection and Assessment; (2) Access Controls; (3) Installation and Transport Security; (4) Storage and Safeguards; (5) Prevention; (6) Decision Support Systems; and (7) Analytical Support. The program will develop systems that are producible, supportable, and affordable and to demonstrate system integration, interoperability, and utility prior to full-rate production. The projects under the PE become technology insertions into existing programs or advance to being a certified Commercial/Government off-the-shelf product. The PE initiatives are coordinated by the Physical Security Enterprise and Analysis Group. This group is responsible for avoiding duplication of effort and when applicable ensure systems integration and promote interoperability and sustainability.

This PE can fund travel to support the requirements of this program.

This appropriation will finance work, including manpower, performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research (systematic study directed toward fuller scientific knowledge or understanding of the subject studied), development (systematic use of the knowledge and understanding gained from research, for the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes) and test and evaluation efforts.

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| <b>Appropriation/Budget Activity</b><br>0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide I BA 5: System Development &amp; Demonstration (SDD)</i> | <b>R-1 Program Element (Number/Name)</b><br>PE 0604161D8Z I <i>Nuclear and Conventional Physical Security/Countering Nuclear Threats</i> |
|--|--|

| <b>B. Program Change Summary (\$ in Millions)</b> | <b>FY 2017</b> | <b>FY 2018</b> | <b>FY 2019 Base</b> | <b>FY 2019 OCO</b> | <b>FY 2019 Total</b> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget                       | 10.324         | 12.536         | 13.574              | -                  | 13.574               |
| Current President's Budget                        | 10.152         | 12.536         | 8.333               | -                  | 8.333                |
| Total Adjustments                                 | -0.172         | 0.000          | -5.241              | -                  | -5.241               |
| • Congressional General Reductions                | -              | -              |                     |                    |                      |
| • Congressional Directed Reductions               | -              | -              |                     |                    |                      |
| • Congressional Rescissions                       | -              | -              |                     |                    |                      |
| • Congressional Adds                              | -              | -              |                     |                    |                      |
| • Congressional Directed Transfers                | -              | -              |                     |                    |                      |
| • Reprogrammings                                  | -              | -              |                     |                    |                      |
| • SBIR/STTR Transfer                              | -0.159         | -              |                     |                    |                      |
| • FFRDC   | -0.011         | -              | -                   | -                  | -                    |
| • FG Adjustment                                   | -              | -              | -0.019              | -                  | -0.019               |
| • Cancelled Account Withhold                      | -0.002         | -              | -                   | -                  | -                    |
| • Internal Realignment                            | -              | -              | -1.682              | -                  | -1.682               |
| • EA-008 Inflation Rate                           | -              | -              | -0.079              | -                  | -0.079               |
| • INV-001 Under Execution Reduction               | -              | -              | -3.461              | -                  | -3.461               |

**Change Summary Explanation**

Internally realigned funding to this RDT&E Program Element to address additional advanced development for the Radiological Detection System

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| Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense |                |         |         |                 |  |                  |         |         |  | Date: February 2018 |                     |               |
|---|----------------|---------|---------|-----------------|--|------------------|---------|---------|--|---------------------|---------------------|---------------|
| Appropriation/Budget Activity<br>0400 / 5   |                |         |         |                 | R-1 Program Element (Number/Name)<br>PE 0604161D8Z / Nuclear and<br>Conventional Physical Security/Countering<br>Nuclear Threats |                  |         |         | Project (Number/Name)<br>163 / Nuclear and Conventional Physical<br>Security |                     |                     |               |
| COST (\$ in Millions)   | Prior<br>Years | FY 2017 | FY 2018 | FY 2019<br>Base | FY 2019<br>OCO   | FY 2019<br>Total | FY 2020 | FY 2021 | FY 2022  | FY 2023             | Cost To<br>Complete | Total<br>Cost |
| 163: Nuclear and Conventional<br>Physical Security                                    | 42.526         | 6.936   | 7.900   | 3.373           | -  | 3.373            | 9.034   | 8.270   | 7.194  | 7.325               | Continuing          | Continuing    |
| Quantity of RDT&E Articles  | -              | -       | -       | -               | -  | -                | -       | -       | -  | -                   |                     |               |

## A. Mission Description and Budget Item Justification

This Program Element (PE) addresses the need to defend and deter against weapons of mass destruction (WMD) threats and to safeguard personnel; prevent unauthorized access to equipment, installations, material, and documents; and to safeguard the foregoing against espionage, sabotage, damage, and theft. This program oversees advanced engineering development throughout DoD for an integrated and systemic RDT&E approach for countering nuclear threats and nuclear and conventional physical security technology and systems. The funding has been centralized in this Defense-wide PE since the early 1990s and represents a substantial portion of all DoD physical security RDT&E funding. Priorities for this PE RDT&E efforts are driven by inputs from Quadrennial Defense Review guidance, Combatant Command and Service requirements, analysis reports such as "Protecting the Force: Lessons from Fort Hood," January 2010, the Integrated Unit, Base, and Installation Protection Cost Benefits Analysis, Multi-national Work Plans established through the Nuclear Security Summit process, and DoD Directive 5210.41, Security Policy for Protecting Nuclear Weapons-directed requirements and associated security deviation reports.

Under this integrated approach, funds are used to provide system development and demonstration for the Department in seven capability areas: (1) Detection and Assessment; (2) Access Controls; (3) Installation and Transport Security; (4) Storage and Safeguards; (5) Prevention; (6) Decision Support Systems; and (7) Analytical Support. The program will develop systems that are producible, supportable, and affordable and to demonstrate system integration, interoperability, and utility prior to full-rate production. The projects under the PE become technology insertions into existing programs or advance to being a certified Commercial/Government off-the-shelf product. The PE initiatives are coordinated by the Physical Security Enterprise and Analysis Group. This group is responsible for avoiding duplication of effort and when applicable ensure systems integration and promote interoperability and sustainability.

This PE can fund travel to support the requirements of this program.

This appropriation will finance work, including manpower, performed by a government agency or by private individuals or organizations under a contractual or grant arrangement with the government who conduct research (systematic study directed toward fuller scientific knowledge or understanding of the subject studied), development (systematic use of the knowledge and understanding gained from research, for the production of useful materials, devices, systems, or methods, including the design and development of prototypes and processes) and test and evaluation efforts.

## B. Accomplishments/Planned Programs (\$ in Millions)

|  | <b>FY 2017</b> | <b>FY 2018</b> | <b>FY 2019</b> |
|--|----------------|----------------|----------------|
| <b>Title:</b> Detection and Assessment | 3.343          | 4.977          | 2.125          |

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| Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense   |  | Date: February 2018  |         |         |
| Appropriation/Budget Activity<br>0400 / 5   | R-1 Program Element (Number/Name)<br>PE 0604161D8Z / Nuclear and<br>Conventional Physical Security/Countering<br>Nuclear Threats | Project (Number/Name)<br>163 / Nuclear and Conventional Physical<br>Security |         |         |
| B. Accomplishments/Planned Programs (\$ in Millions)  |  | FY 2017  | FY 2018 | FY 2019 |
| <p><b>Description:</b> The ability to detect an adversary and assess their intentions is a basic physical security tenant. This capability area will design equipment to identify and warn of unauthorized access to a specified area or installation as well as equipment related to the notification and identification of explosive threats or hazards.</p> <p><b>FY 2018 Plans:</b></p> <ul style="list-style-type: none"><li>• Develop Linear Sensor System Development for Multi-Threat Detection</li><li>• Develop PL1N/PL1 Portable Intrusion Detection System</li></ul> <p><b>FY 2019 Plans:</b></p> <ul style="list-style-type: none"><li>• Develop Linear Sensor System Development for Multi-Threat Detection</li><li>• Develop PL1N/PL1 Portable Intrusion Detection System</li></ul> <p><b>FY 2018 to FY 2019 Increase/Decrease Statement:</b><br/>Projects and project cost vary from year to year</p> |  |  |         |         |
| <p><b>Title:</b> Access Controls</p> <p><b>Description:</b> Controlling access to safeguard personnel and their families and to prevent unauthorized access to critical infrastructure and materials is paramount. This capability area will focus on programs and processes related to the validity and verification of individuals entering or already within, a facility.</p> <p><b>FY 2018 Plans:</b></p> <ul style="list-style-type: none"><li>• No current projects are being worked in this area</li></ul> <p><b>FY 2019 Plans:</b></p> <ul style="list-style-type: none"><li>• No current projects are being planned in this area</li></ul> <p><b>FY 2018 to FY 2019 Increase/Decrease Statement:</b><br/>Projects and project cost vary from year to year</p>  |  | 1.010  | 0.000   | 0.000   |
| <p><b>Title:</b> Installation and Transport Security</p> <p><b>Description:</b> Robust installation and transport security are vital to preventing a weapon of mass destruction attack or the unauthorized access to key assets such as nuclear weapons and special nuclear material. This capability area will focus on programs and equipment intended to improve the physical security profile of fixed sites and facilities, as well as critical items while in-transit.</p> <p><b>FY 2018 Plans:</b></p>   |  | 0.400  | 0.000   | 0.000   |

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| <b>Appropriation/Budget Activity</b><br>0400 / 5   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604161D8Z / <i>Nuclear and Conventional Physical Security/Countering Nuclear Threats</i> | <b>Project (Number/Name)</b><br>163 / <i>Nuclear and Conventional Physical Security</i> |                |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b>  |  | <b>FY 2017</b>  | <b>FY 2018</b> | <b>FY 2019</b> |
| <ul style="list-style-type: none"> <li>No current projects are being worked in this area</li> </ul> <b>FY 2019 Plans:</b> <ul style="list-style-type: none"> <li>No current projects are being planned in this area</li> </ul> <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b><br>Projects and project cost vary from year to year  |  |   |                |                |
| <b>Title:</b> Prevention<br><br><b>Description:</b> The security procedures taken to discourage an adversary from accessing weapons of mass destruction or gaining unauthorized access to critical assets are at the heart of prevention. This capability area will focus on broad spectrum, generic efforts which have the ability to influence multiple areas.<br><br><b>FY 2018 Plans:</b> <ul style="list-style-type: none"> <li>Develop a counter Unmanned Underwater / Surface / Ground Vehicle technology roadmap</li> </ul> <b>FY 2019 Plans:</b> <ul style="list-style-type: none"> <li>Continue to develop a counter Unmanned Underwater / Surface / Ground Vehicle technology roadmap</li> </ul> <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b><br>Projects and project cost vary from year to year |  | 0.660   | 1.027          | 0.439          |
| <b>Title:</b> Storage and Safeguards<br><br><b>Description:</b> Properly securing critical assets to prevent access by unauthorized persons and implementing control measures that ensure access is limited to authorized persons is the foundation of physical security. This capability area will focus on equipment (e.g., locks, doors, etc.) designed to delay or stop unauthorized entry/access to a specified/localized area.<br><br><b>FY 2018 Plans:</b> <ul style="list-style-type: none"> <li>No current projects are being worked in this area</li> </ul> <b>FY 2019 Plans:</b> <ul style="list-style-type: none"> <li>No current projects are being planned in this area</li> </ul> <b>FY 2018 to FY 2019 Increase/Decrease Statement:</b><br>There were no changes                                       |  | -   | 0.000          | 0.000          |
| <b>Title:</b> Decision Support Systems   |  | 0.880   | 0.553          | 0.236          |

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| <b>Appropriation/Budget Activity</b><br>0400 / 5  | <b>R-1 Program Element (Number/Name)</b><br>PE 0604161D8Z / <i>Nuclear and Conventional Physical Security/Countering Nuclear Threats</i> | <b>Project (Number/Name)</b><br>163 / <i>Nuclear and Conventional Physical Security</i> |                |
| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b>   |  | <b>FY 2017</b>  | <b>FY 2018</b> |
| <p><b>Description:</b> Decision support systems serve the management, operations, and planning levels of the DoD physical security enterprise to help to make decisions, which may be rapidly changing and not easily specified in advance. This capability area will focus on command and control equipment and projects related to the creation and enhancement of common operating pictures, and the establishment of common architectures / interface standards.</p> <p><b>FY 2018 Plans:</b></p> <ul style="list-style-type: none"> <li>• Continue to develop Response Force Command, Control &amp; Communications</li> <li>• Continue to develop C2 Enhanced Capability Suite</li> </ul> <p><b>FY 2019 Plans:</b></p> <ul style="list-style-type: none"> <li>• Continue to develop Response Force Command, Control &amp; Communications</li> <li>• Continue to develop C2 Enhanced Capability Suite</li> </ul> <p><b>FY 2018 to FY 2019 Increase/Decrease Statement:</b><br/>Projects and project cost vary from year to year</p> |  |   |                |
| <p><b>Title:</b> Analytical Support</p> <p><b>Description:</b> This capability area will focus on studies related to physical security topics and operational and management efforts related to day-to-day activities of the DoD Physical Security Enterprise RDT&amp;E Program.</p> <p><b>FY 2018 Plans:</b></p> <ul style="list-style-type: none"> <li>• Conduct physical security test and evaluation efforts</li> <li>• Provide DOD and industry the means to achieve PSE interoperability</li> </ul> <p><b>FY 2019 Plans:</b></p> <ul style="list-style-type: none"> <li>• Conduct physical security test and evaluation efforts</li> <li>• Provide DOD and industry the means to achieve PSE interoperability</li> </ul> <p><b>FY 2018 to FY 2019 Increase/Decrease Statement:</b><br/>Projects and project cost vary from year to year</p>   |  | 0.643   | 1.343          |
| <b>Accomplishments/Planned Programs Subtotals</b>   |  | 6.936   | 7.900          |
| <b>C. Other Program Funding Summary (\$ in Millions)</b>  |  |   |                |
| N/A   |  |   |                |

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| <b>Appropriation/Budget Activity</b><br>0400 / 5  | <b>R-1 Program Element (Number/Name)</b><br>PE 0604161D8Z / <i>Nuclear and Conventional Physical Security/Countering Nuclear Threats</i> | <b>Project (Number/Name)</b><br>163 / <i>Nuclear and Conventional Physical Security</i> |
| <b>C. Other Program Funding Summary (\$ in Millions)</b><br><br><b>Remarks</b><br>NA<br><br><b>D. Acquisition Strategy</b><br>N/A<br><br><b>E. Performance Metrics</b><br>The program performance metrics are established/approved through the Office of the Deputy Assistant Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs / Nuclear Matters. The cost, schedule and technical progress of each project is reviewed at quarterly PSEAG. Performance variances are addressed and corrective action is implemented as necessary. |  |   |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense |                              |  |                |         |               |  |               |                 |               |  |               | Date: February 2018 |                     |               |                                |
|--|------------------------------|--|----------------|---------|---------------|--|---------------|-----------------|---------------|--|---------------|---------------------|---------------------|---------------|--------------------------------|
| Appropriation/Budget Activity<br>0400 / 5  |                              |  |                |         |               | R-1 Program Element (Number/Name)<br>PE 0604161D8Z / Nuclear and<br>Conventional Physical Security/Countering<br>Nuclear Threats |               |                 |               | Project (Number/Name)<br>163 / Nuclear and Conventional Physical<br>Security |               |                     |                     |               |                                |
| Product Development (\$ in Millions)   |                              |  |                | FY 2017 |               | FY 2018  |               | FY 2019<br>Base |               | FY 2019<br>OCO   |               | FY 2019<br>Total    |                     |               |                                |
| Cost Category Item   | Contract<br>Method<br>& Type | Performing<br>Activity & Location          | Prior<br>Years | Cost    | Award<br>Date | Cost   | Award<br>Date | Cost            | Award<br>Date | Cost   | Award<br>Date | Cost                | Cost To<br>Complete | Total<br>Cost | Target<br>Value of<br>Contract |
| National Information<br>Exchange Model   | Various                      | SPAWAR Atlantic :<br>Charleston, SC        | -              | 0.474   |               | 0.235  |               | -               |               | -  |               | -                   | Continuing          | Continuing    | -                              |
| Military Ocean Terminal  | Various                      | Various : Various                          | -              | 0.285   |               | -  |               | -               |               | -  |               | -                   | -                   | -             | -                              |
| Force Protection Cross-<br>Domain  | MIPR                         | PEO IEW&S : Ft<br>Belvoir, VA              | -              | 0.466   |               | -  |               | -               |               | -  |               | -                   | Continuing          | Continuing    | -                              |
| Tactical Security System   | MIPR                         | PEO IEW&S : Ft<br>Belvoir, MD              | -              | 0.317   |               | -  |               | -               |               | -  |               | -                   | Continuing          | Continuing    | -                              |
| C2 Enhanced Capability<br>Suite  | MIPR                         | SPAWAR Pacific :<br>Various                | -              | 0.650   |               | -  |               | -               |               | -  |               | -                   | Continuing          | Continuing    | -                              |
| Foliage Penetration  | MIPR                         | Various : Various                          | -              | 0.187   |               | -  |               | -               |               | -  |               | -                   | Continuing          | Continuing    | -                              |
| ESS Cyber Security<br>Assessment   | MIPR                         | Various : Various                          | -              | 0.261   |               | -  |               | -               |               | -  |               | -                   | Continuing          | Continuing    | -                              |
| Indoor Gunshot Detection<br>System   | MIPR                         | SPAWAR Atlantic :<br>Charleston, SC        | -              | 0.427   |               | 0.497  |               | -               |               | -  |               | -                   | -                   | -             | -                              |
| Physical Security RDT&E  | Various                      | Various : Various                          | 42.526         | 0.205   |               | 1.993  |               | -               |               | -  |               | -                   | Continuing          | Continuing    | -                              |
| Interoperability Standards   | MIPR                         | SPAWAR Atlantic :<br>Charleston, SC        | -              | -       |               | 0.235  |               | -               |               | -  |               | -                   | Continuing          | Continuing    | -                              |
| Trace Explosive Detection<br>System Improvement                                      | MIPR                         | EOD Tech Division :<br>Indian Head, MD     | -              | -       |               | 0.927  |               | -               |               | -  |               | -                   | -                   | -             | -                              |
| Integrating MANTAS USA<br>with NUTR COP  | MIPR                         | SPAWARSYSCEN<br>Pacific : San Diego,<br>CA | -              | -       |               | 0.250  |               | -               |               | -  |               | -                   | -                   | -             | -                              |
| Detection & Assessment   | Various                      | Various : Various                          | -              | -       |               | -  |               | 1.169           |               | -  |               | 1.169               | Continuing          | Continuing    | -                              |
| Access Control   | Various                      | Various : Various                          | -              | -       |               | -  |               | 0.000           |               | -  |               | 0.000               | Continuing          | Continuing    | -                              |
| Storage & Safeguards   | Various                      | Various : Various                          | -              | -       |               | -  |               | 0.000           |               | -  |               | 0.000               | Continuing          | Continuing    | -                              |
| Analytical Support   | Various                      | Various : Various                          | -              | -       |               | -  |               | 0.315           |               | -  |               | 0.315               | Continuing          | Continuing    | -                              |
| Decision Support   | Various                      | Various : Various                          | -              | -       |               | -  |               | 0.130           |               | -  |               | 0.130               | Continuing          | Continuing    | -                              |
| Prevention   | Various                      | Various : Various                          | -              | -       |               | -  |               | 0.241           |               | -  |               | 0.241               | Continuing          | Continuing    | -                              |
| Installation & Transport<br>Security   | Various                      | Various : Various                          | -              | -       |               | -  |               | 0.000           |               | -  |               | 0.000               | Continuing          | Continuing    | -                              |



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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Office of the Secretary Of Defense          |                              |  |                |         |               |  |               |                 |               |                |               | Date: February 2018  |                     |               |                                |  |  |
|---|------------------------------|--|----------------|---------|---------------|--|---------------|-----------------|---------------|----------------|---------------|--|---------------------|---------------|--------------------------------|--|--|
| Appropriation/Budget Activity<br>0400 / 5   |                              |  |                |         |               | R-1 Program Element (Number/Name)<br>PE 0604161D8Z / Nuclear and<br>Conventional Physical Security/Countering<br>Nuclear Threats |               |                 |               |                |               | Project (Number/Name)<br>163 / Nuclear and Conventional Physical<br>Security |                     |               |                                |  |  |
| Product Development (\$ in Millions)  |                              |  |                | FY 2017 |               | FY 2018  |               | FY 2019<br>Base |               | FY 2019<br>OCO |               | FY 2019<br>Total   |                     |               |                                |  |  |
| Cost Category Item  | Contract<br>Method<br>& Type | Performing<br>Activity & Location          | Prior<br>Years | Cost    | Award<br>Date | Cost   | Award<br>Date | Cost            | Award<br>Date | Cost           | Award<br>Date | Cost   | Cost To<br>Complete | Total<br>Cost | Target<br>Value of<br>Contract |  |  |
| Subtotal  |                              |  | 42.526         | 3.272   |               | 4.137  |               | 1.855           |               | -              |               | 1.855  | Continuing          | Continuing    | N/A                            |  |  |
| Remarks<br>NA   |                              |  |                |         |               |  |               |                 |               |                |               |  |                     |               |                                |  |  |
| Test and Evaluation (\$ in Millions)  |                              |  |                | FY 2017 |               | FY 2018  |               | FY 2019<br>Base |               | FY 2019<br>OCO |               | FY 2019<br>Total   |                     |               |                                |  |  |
| Cost Category Item  | Contract<br>Method<br>& Type | Performing<br>Activity & Location          | Prior<br>Years | Cost    | Award<br>Date | Cost   | Award<br>Date | Cost            | Award<br>Date | Cost           | Award<br>Date | Cost   | Cost To<br>Complete | Total<br>Cost | Target<br>Value of<br>Contract |  |  |
| PSEAG T&E   | MIPR                         | SPAWAR Atlantic :<br>Charleston, SC        | -              | 0.650   |               | 0.123  |               | -               |               | -              |               | -  | Continuing          | Continuing    | -                              |  |  |
| Comparative Evaluation<br>of Man-Portable Mass<br>Spectrometry Explosive<br>Detection Systems | MIPR                         | EOD Tech Division :<br>Indian Head, MD     | -              | 0.918   |               | -  |               | -               |               | -              |               | -  | -                   | -             | -                              |  |  |
| Comparative Colorimetric  | MIPR                         | EOD Tech Division :<br>Indian Head, MD     | -              | 0.978   |               | -  |               | -               |               | -              |               | -  | -                   | -             | -                              |  |  |
| Detection of Insensitive<br>Munitions   | MIPR                         | EOD Tech Division :<br>Indian Head, MD     | -              | 0.465   |               | -  |               | -               |               | -              |               | -  | -                   | -             | -                              |  |  |
| Development, Test and<br>Evaluation of System<br>Operations Audit and<br>Recording            | MIPR                         | SPAWAR Atlantic :<br>Charleston, SC        | -              | 0.653   |               | 0.562  |               | -               |               | -              |               | -  | -                   | -             | -                              |  |  |
| Explosive Vapor Detection<br>Test & Evaluation  | MIPR                         | EOD Tech Division :<br>Indian Head, MD     | -              | -       |               | 0.603  |               | -               |               | -              |               | -  | -                   | -             | -                              |  |  |
| Raman Comparative   | MIPR                         | EOD Techg<br>Division : Indian<br>Head, MD | -              | -       |               | 0.713  |               | -               |               | -              |               | -  | -                   | -             | -                              |  |  |
| Radiological Detection<br>System  | Sub Allot                    | JPEO CBD :<br>Aberdeen, MD                 | -              | -       |               | 0.248  |               | -               |               | -              |               | -  | -                   | -             | -                              |  |  |

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| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2019 Office of the Secretary Of Defense |  |  |  |  |  |   |  |  |  |  |  | <b>Date:</b> February 2018   |  |  |  |
| <b>Appropriation/Budget Activity</b><br>0400 / 5  |  |  |  |  |  | <b>R-1 Program Element (Number/Name)</b><br>PE 0604161D8Z / Nuclear and Conventional Physical Security/Countering Nuclear Threats |  |  |  |  |  | <b>Project (Number/Name)</b><br>163 / Nuclear and Conventional Physical Security |  |  |  |

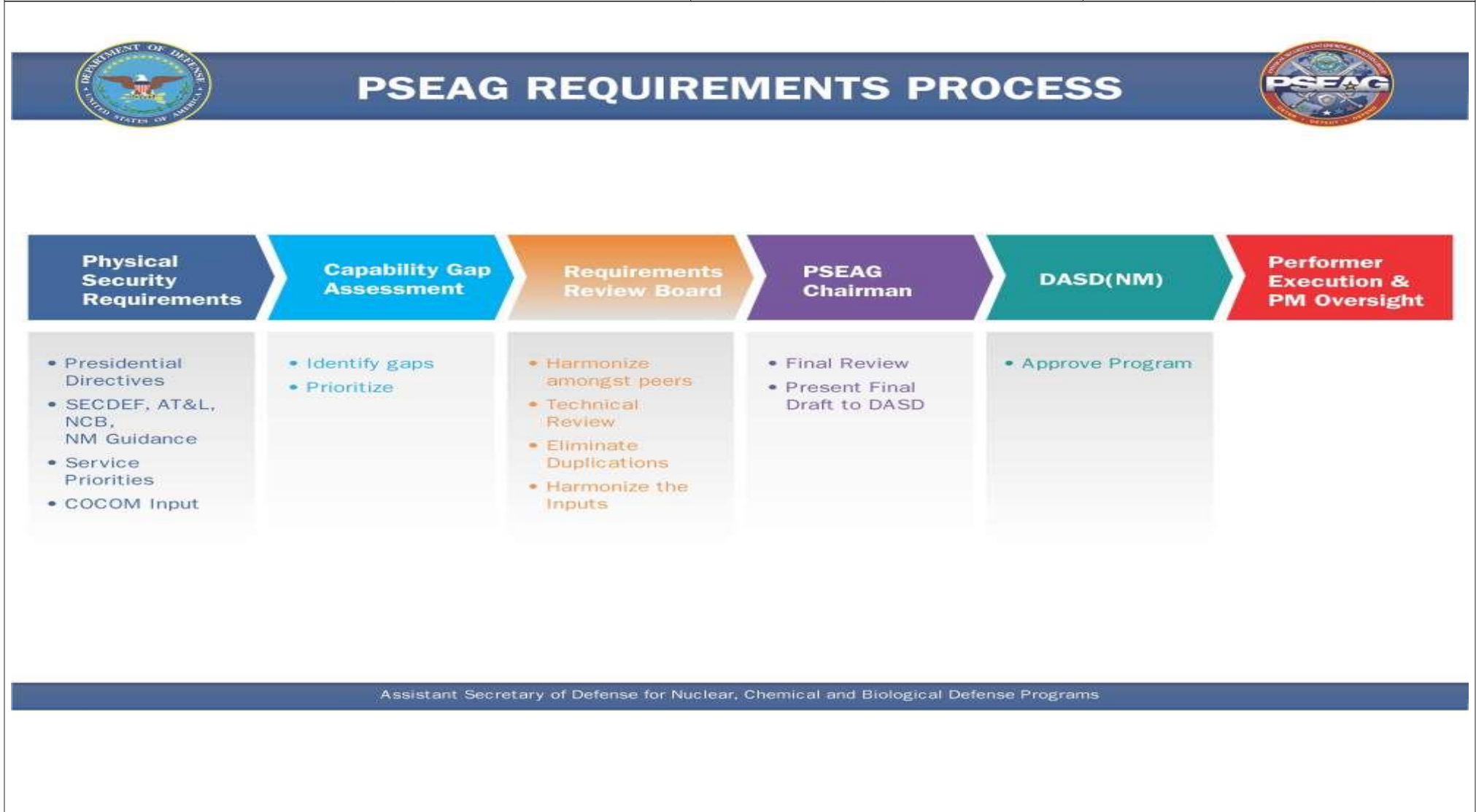
| <b>Test and Evaluation (\$ in Millions)</b>         |                                   |  |                    | <b>FY 2017</b> |                   | <b>FY 2018</b> |                   | <b>FY 2019 Base</b> |                   | <b>FY 2019 OCO</b> |                   | <b>FY 2019 Total</b> |                   |                         |                   |                                 |
|---|-----------------------------------|--|--------------------|----------------|-------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------|-------------------------|-------------------|---------------------------------|
| <b>Cost Category Item</b>                           | <b>Contract Method &amp; Type</b> | <b>Performing Activity &amp; Location</b>  | <b>Prior Years</b> | <b>Cost</b>    | <b>Award Date</b> | <b>Cost</b>    | <b>Award Date</b> | <b>Cost</b>         | <b>Award Date</b> | <b>Cost</b>        | <b>Award Date</b> | <b>Cost</b>          | <b>Award Date</b> | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |
| Targeted Trace System Test: Fido X4 and Road Runner | MIPR                              | EOD Tech Division : Indian Head, MD        | -                  | -              |                   | 0.457          |                   | -                   |                   | -                  |                   | -                    |                   | -                       | -                 | -                               |
| Stand-Off Weapon Defeat IPT                         | MIPR                              | NSWC Dahlgren Division : Dahlgren Division | -                  | -              |                   | 1.057          |                   | -                   |                   | -                  |                   | -                    |                   | -                       | -                 | -                               |
| PSEAG Test & Evaluation                             | MIPR                              | Multiple Performers : Multiple Performers  | -                  | -              |                   | -              |                   | 1.518               |                   | -                  |                   | 1.518                |                   | Continuing              | Continuing        | -                               |
| <b>Subtotal</b>                                     |                                   |  | -                  | 3.664          |                   | 3.763          |                   | 1.518               |                   | -                  |                   | 1.518                |                   | Continuing              | Continuing        | N/A                             |

|                            |  |  |                    |                |  |                |  |                     |  |                    |  |                      |                         |                   |                                 |  |
|----------------------------|--|--|--------------------|----------------|--|----------------|--|---------------------|--|--------------------|--|----------------------|-------------------------|-------------------|---------------------------------|--|
| <b>Remarks</b><br>NA       |  |  |                    |                |  |                |  |                     |  |                    |  |                      |                         |                   |                                 |  |
|                            |  |  |                    |                |  |                |  |                     |  |                    |  |                      |                         |                   |                                 |  |
|                            |  |  | <b>Prior Years</b> | <b>FY 2017</b> |  | <b>FY 2018</b> |  | <b>FY 2019 Base</b> |  | <b>FY 2019 OCO</b> |  | <b>FY 2019 Total</b> | <b>Cost To Complete</b> | <b>Total Cost</b> | <b>Target Value of Contract</b> |  |
| <b>Project Cost Totals</b> |  |  | 42.526             | 6.936          |  | 7.900          |  | 3.373               |  | -                  |  | 3.373                | Continuing              | Continuing        | N/A                             |  |
| <b>Remarks</b><br>NA       |  |  |                    |                |  |                |  |                     |  |                    |  |                      |                         |                   |                                 |  |

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| <b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2019 Office of the Secretary Of Defense |  | <b>Date:</b> February 2018  |
| <b>Appropriation/Budget Activity</b><br>0400 / 5   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604161D8Z / <i>Nuclear and Conventional Physical Security/Countering Nuclear Threats</i> | <b>Project (Number/Name)</b><br>163 / <i>Nuclear and Conventional Physical Security</i> |



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| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Office of the Secretary Of Defense |  |   | <b>Date:</b> February 2018 |
| <b>Appropriation/Budget Activity</b><br>0400 / 5  | <b>R-1 Program Element (Number/Name)</b><br>PE 0604161D8Z / <i>Nuclear and Conventional Physical Security/Countering Nuclear Threats</i> | <b>Project (Number/Name)</b><br>163 / <i>Nuclear and Conventional Physical Security</i> |                            |

## Schedule Details

| Events by Sub Project                               | Start   |      | End     |      |
|---|---------|------|---------|------|
|   | Quarter | Year | Quarter | Year |
| <b><i>Detection &amp; Assessment</i></b>            |         |      |         |      |
| Detection & Assessment                              | 1       | 2012 | 4       | 2023 |
| <b><i>Decision Support</i></b>                      |         |      |         |      |
| Decision Support                                    | 1       | 2012 | 4       | 2023 |
| <b><i>Storage &amp; Safeguards</i></b>              |         |      |         |      |
| Storage & Safeguards                                | 1       | 2012 | 4       | 2023 |
| <b><i>Installation &amp; Transport Security</i></b> |         |      |         |      |
| Installation & transport Security                   | 1       | 2012 | 4       | 2023 |
| <b><i>Prevention</i></b>                            |         |      |         |      |
| Prevention  | 1       | 2012 | 4       | 2023 |
| <b><i>Access Control</i></b>                        |         |      |         |      |
| Access Control                                      | 1       | 2012 | 4       | 2023 |
| <b><i>Analytical Support</i></b>                    |         |      |         |      |
| Analytical Support                                  | 4       | 2018 | 4       | 2023 |

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|---|----------------|---------|---------|-----------------|--|------------------|---------|---------|---|---------------------|---------------------|---------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2019 Office of the Secretary Of Defense   |                |         |         |                 |  |                  |         |         |   | Date: February 2018 |                     |               |
| Appropriation/Budget Activity<br>0400 / 5   |                |         |         |                 | R-1 Program Element (Number/Name)<br>PE 0604161D8Z / Nuclear and<br>Conventional Physical Security/Countering<br>Nuclear Threats |                  |         |         | Project (Number/Name)<br>042 / CNT Prevention SDD |                     |                     |               |
| COST (\$ in Millions)   | Prior<br>Years | FY 2017 | FY 2018 | FY 2019<br>Base | FY 2019<br>OCO   | FY 2019<br>Total | FY 2020 | FY 2021 | FY 2022   | FY 2023             | Cost To<br>Complete | Total<br>Cost |
| 042: CNT Prevention SDD   | 8.502          | 3.216   | 4.636   | 4.960           | -  | 4.960            | 3.853   | 0.000   | 0.000   | 0.000               | Continuing          | Continuing    |
| Quantity of RDT&E Articles  | -              | -       | -       | -               | -  | -                | -       | -       | -   | -                   |                     |               |
| A. Mission Description and Budget Item Justification  |                |         |         |                 |  |                  |         |         |   |                     |                     |               |
| Establish a Defense-wide Countering Nuclear Threats (CNT) Materiel Development Program focused on prevention. Addresses capability gaps identified by Services, Combatant Commands, and Joint Staff. The CNT acquisition strategy directly applies to Joint requirements for CNT materiel development and addresses the materiel and sustainment gaps for general purpose Joint Forces including the US Army 20th Support Command / Navy Visit, Board, Search, and Seizure / Technical Support Groups (NIMBLE ELDER and the US Special Operations Command). |                |         |         |                 |  |                  |         |         |   |                     |                     |               |
| B. Accomplishments/Planned Programs (\$ in Millions)  |                |         |         |                 |  |                  |         |         | FY 2017   | FY 2018             | FY 2019             |               |
| Title: CNT Rad/Nuc Passive Defense  |                |         |         |                 |  |                  |         |         | 3.216   | 4.636               | 4.960               |               |
| Description: Advanced Development of Joint Radiological and Nuclear passive defense systems (i.e. Radiological Detection System and the Joint Personal Dosimeter).  |                |         |         |                 |  |                  |         |         |   |                     |                     |               |
| The Radiological Detection System will provide a ruggedized Radiation Detection, Indication, and Computation for real time gamma radiation monitoring and low energy x-ray, beta, alpha, and neutron detection.   |                |         |         |                 |  |                  |         |         |   |                     |                     |               |
| The Joint Personal Dosimeter will provide a joint solution to increase capability and reduce life-cycle costs.  |                |         |         |                 |  |                  |         |         |   |                     |                     |               |
| Both systems will address Operation TOMODACHI (response to Japan's Fukushima Daiichi nuclear power plant incident) lessons learned for common, interoperable equipment with adequate sensitivity and common units of measure.   |                |         |         |                 |  |                  |         |         |   |                     |                     |               |
| FY 2018 Plans:  |                |         |         |                 |  |                  |         |         |   |                     |                     |               |
| Complete the development of Joint Radiological and Nuclear passive defense systems (i.e. Radiological Detection System and the Joint Personal Dosimeter)  |                |         |         |                 |  |                  |         |         |   |                     |                     |               |
| FY 2019 Plans:  |                |         |         |                 |  |                  |         |         |   |                     |                     |               |
| Complete the development of Joint Radiological and Nuclear passive defense systems (i.e. Radiological Detection System)   |                |         |         |                 |  |                  |         |         |   |                     |                     |               |
| FY 2018 to FY 2019 Increase/Decrease Statement:   |                |         |         |                 |  |                  |         |         |   |                     |                     |               |
| No change   |                |         |         |                 |  |                  |         |         |   |                     |                     |               |
| Accomplishments/Planned Programs Subtotals  |                |         |         |                 |  |                  |         |         | 3.216   | 4.636               | 4.960               |               |

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| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2019 Office of the Secretary Of Defense   |  | <b>Date:</b> February 2018                                      |
| <b>Appropriation/Budget Activity</b><br>0400 / 5   | <b>R-1 Program Element (Number/Name)</b><br>PE 0604161D8Z / <i>Nuclear and<br/>Conventional Physical Security/Countering<br/>Nuclear Threats</i> | <b>Project (Number/Name)</b><br>042 / <i>CNT Prevention SDD</i> |
| <p><b><u>C. Other Program Funding Summary (\$ in Millions)</u></b><br/>N/A</p> <p><b><u>Remarks</u></b></p> <p><b><u>D. Acquisition Strategy</u></b><br/>N/A</p> <p><b><u>E. Performance Metrics</u></b><br/>The program performance metrics are established/approved through the Countering Nuclear Threats Program Manager. The cost, schedule and technical progress is reviewed on a quarterly basis. Performance variances are addressed and corrective action(s) is(are) implemented as necessary.</p> |  |   |

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| <b>Exhibit R-3, RDT&amp;E Project Cost Analysis:</b> PB 2019 Office of the Secretary Of Defense |  |  |  |  |  |   |  |  |  |  |  | <b>Date:</b> February 2018 |  |  |
| <b>Appropriation/Budget Activity</b><br>0400 / 5  |  |  |  |  |  | <b>R-1 Program Element (Number/Name)</b><br>PE 0604161D8Z / Nuclear and<br>Conventional Physical Security/Countering<br>Nuclear Threats |  |  |  | <b>Project (Number/Name)</b><br>042 / CNT Prevention SDD |  |                            |  |  |

| <b>Product Development (\$ in Millions)</b> |   |   |                        | <b>FY 2017</b> |                       | <b>FY 2018</b> |                       | <b>FY 2019<br/>Base</b> |                       | <b>FY 2019<br/>OCO</b> |                       | <b>FY 2019<br/>Total</b> |                             |                       |   |  |
|---|---|---|------------------------|----------------|-----------------------|----------------|-----------------------|-------------------------|-----------------------|------------------------|-----------------------|--------------------------|-----------------------------|-----------------------|---|--|
| <b>Cost Category Item</b>                   | <b>Contract<br/>Method<br/>&amp; Type</b> | <b>Performing<br/>Activity &amp; Location</b> | <b>Prior<br/>Years</b> | <b>Cost</b>    | <b>Award<br/>Date</b> | <b>Cost</b>    | <b>Award<br/>Date</b> | <b>Cost</b>             | <b>Award<br/>Date</b> | <b>Cost</b>            | <b>Award<br/>Date</b> | <b>Cost</b>              | <b>Cost To<br/>Complete</b> | <b>Total<br/>Cost</b> | <b>Target<br/>Value of<br/>Contract</b> |  |
| Radiological Detection System               | Sub Allot                                 | JPEO CBD :<br>Aberdeen, MD                    | 1.034                  | 0.867          |                       | 4.636          |                       | -                       |                       | -                      |                       | -                        | Continuing                  | Continuing            | -                                       |  |
| Joint Personal Dosimeter                    | Sub Allot                                 | JPEO CBD :<br>Aberdeen, MD                    | 7.468                  | 2.349          |                       | -              |                       | -                       |                       | -                      |                       | -                        | Continuing                  | Continuing            | -                                       |  |
| Prevent Nuclear Threats                     | TBD                                       | TBD : TBD                                     | -                      | -              |                       | -              |                       | 4.960                   |                       | -                      |                       | 4.960                    | Continuing                  | Continuing            | -                                       |  |
| <b>Subtotal</b>                             |   |   | 8.502                  | 3.216          |                       | 4.636          |                       | 4.960                   |                       | -                      |                       | 4.960                    | Continuing                  | Continuing            | N/A                                     |  |

|                      |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <b>Remarks</b><br>NA |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

|                            | <b>Prior<br/>Years</b> | <b>FY 2017</b> |  | <b>FY 2018</b> |  | <b>FY 2019<br/>Base</b> |  | <b>FY 2019<br/>OCO</b> |  | <b>FY 2019<br/>Total</b> | <b>Cost To<br/>Complete</b> | <b>Total<br/>Cost</b> | <b>Target<br/>Value of<br/>Contract</b> |
|----------------------------|------------------------|----------------|--|----------------|--|-------------------------|--|------------------------|--|--------------------------|-----------------------------|-----------------------|---|
| <b>Project Cost Totals</b> | 8.502                  | 3.216          |  | 4.636          |  | 4.960                   |  | -                      |  | 4.960                    | Continuing                  | Continuing            | N/A                                     |

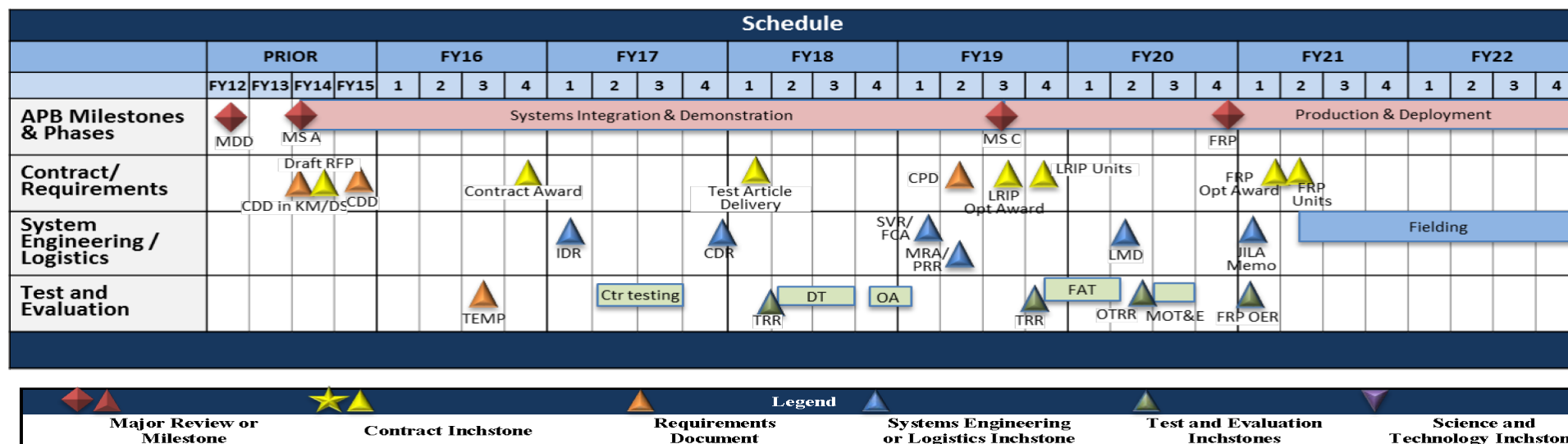
  

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|----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| <b>Remarks</b><br>NA |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense |  | Date: February 2018                               |
| Appropriation/Budget Activity<br>0400 / 5                                       | R-1 Program Element (Number/Name)<br>PE 0604161D8Z / Nuclear and<br>Conventional Physical Security/Countering<br>Nuclear Threats | Project (Number/Name)<br>042 / CNT Prevention SDD |

## Radiological Detection System

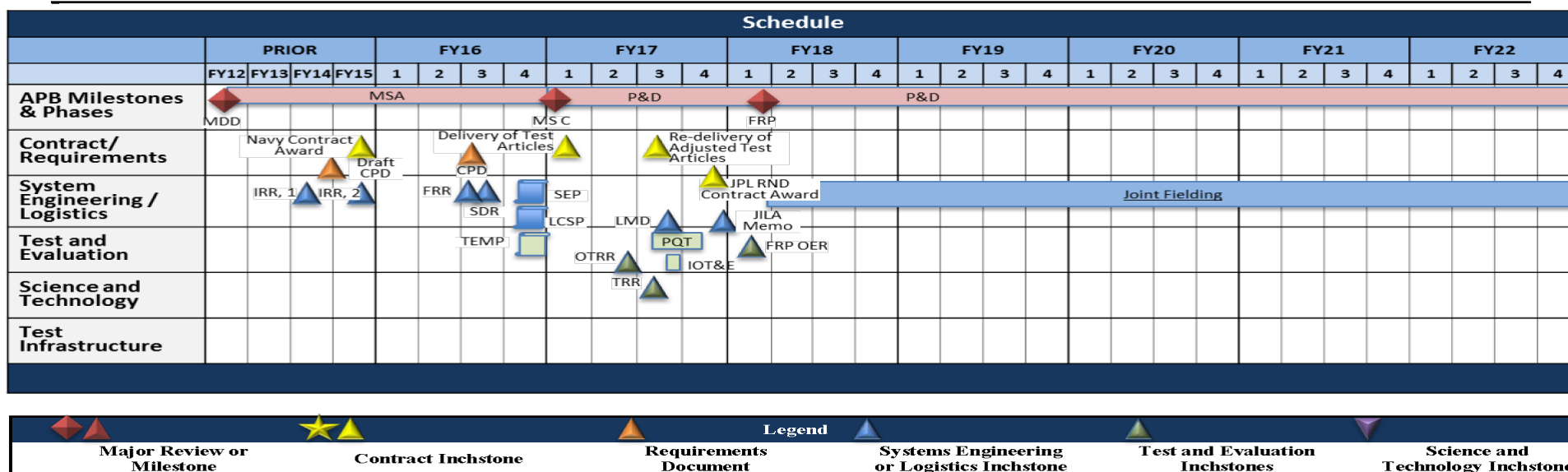




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| Exhibit R-4, RDT&E Schedule Profile: PB 2019 Office of the Secretary Of Defense |  |   | Date: February 2018 |
| Appropriation/Budget Activity<br>0400 / 5                                       | R-1 Program Element (Number/Name)<br>PE 0604161D8Z / Nuclear and<br>Conventional Physical Security/Countering<br>Nuclear Threats | Project (Number/Name)<br>042 / CNT Prevention SDD |                     |

## Joint Personal Dosimeter



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| <b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2019 Office of the Secretary Of Defense |  |   | <b>Date:</b> February 2018 |
| <b>Appropriation/Budget Activity</b><br>0400 / 5  | <b>R-1 Program Element (Number/Name)</b><br>PE 0604161D8Z / <i>Nuclear and Conventional Physical Security/Countering Nuclear Threats</i> | <b>Project (Number/Name)</b><br>042 / <i>CNT Prevention SDD</i> |                            |

**Schedule Details**

| Events by Sub Project                       | Start   |      | End     |      |
|---|---------|------|---------|------|
|   | Quarter | Year | Quarter | Year |
| <b><i>Radiological Detection System</i></b> |         |      |         |      |
| Radiological Detection System               | 1       | 2018 | 4       | 2020 |
| <b><i>Joint Personal Dosimeter</i></b>      |         |      |         |      |
| Joint Personal Dosimeter                    | 4       | 2014 | 1       | 2018 |
| <b><i>Prevent Nuclear Threats</i></b>       |         |      |         |      |
| Prevent Nuclear Threats                     | 1       | 2019 | 4       | 2023 |